



Science & Technology for the Objective Force

NDIA

***Armaments for the Army
Transformation Conference***

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John G. Appel Jr.
Deputy Director for Technology
*Office of the Deputy Assistant Secretary of the Army,
Research and Technology*

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Army S&T Vision...

Accelerate the Pace of Transformation to the Objective Force

- ***Develop technologies and prototype systems for the Objective Force -- with the Future Combat Systems (FCS) as the cornerstone.***
- ***Pursue innovation to achieve “leap ahead” warfighting capabilities through technology.***
- ***Identify and leverage the best sources of technology for the Army.***
- ***Develop technologies to maintain essential overmatch in the current force.***



Focusing Technology Innovation ... Smaller, Smarter & Lighter

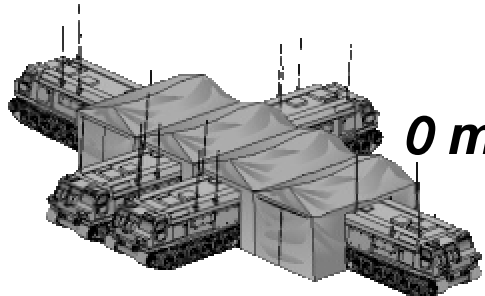
Today



***~100 lb.
load***



***70+
tons***



0 mph

Objective Force

***< 30 lb.
load***



***< 20
tons***



> 40 mph



***S&T
-- Accelerating
the pace of Army
Transformation***



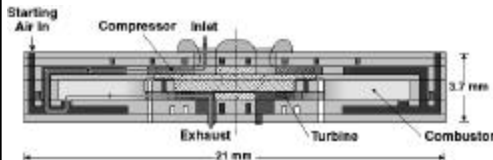
Concept & Technology Development - From Ideas to Weapons Systems

S&T

Development

Acquisition

6.1: Basic Research (~15% of S&T)



Microturbine Engine Concept

- Generates new knowledge & understanding to solve Army-unique problems
- Creates solutions for an uncertain future

6.2: Applied Research (~45% of S&T)



**Micro Laser Rangefinder
Brassboard Prototype**

- Research on technological options applicable to specific military problems
- Focused on development of components, subsystems, models, new concepts

6.3: Advanced Technology Development (~40% of S&T)



LOSAT ACTD

- Demonstration of technical feasibility at the system and subsystem level
- Provides path for rapid insertion of new technology
- Assess military utility

Science and Technology Objectives (STOs)

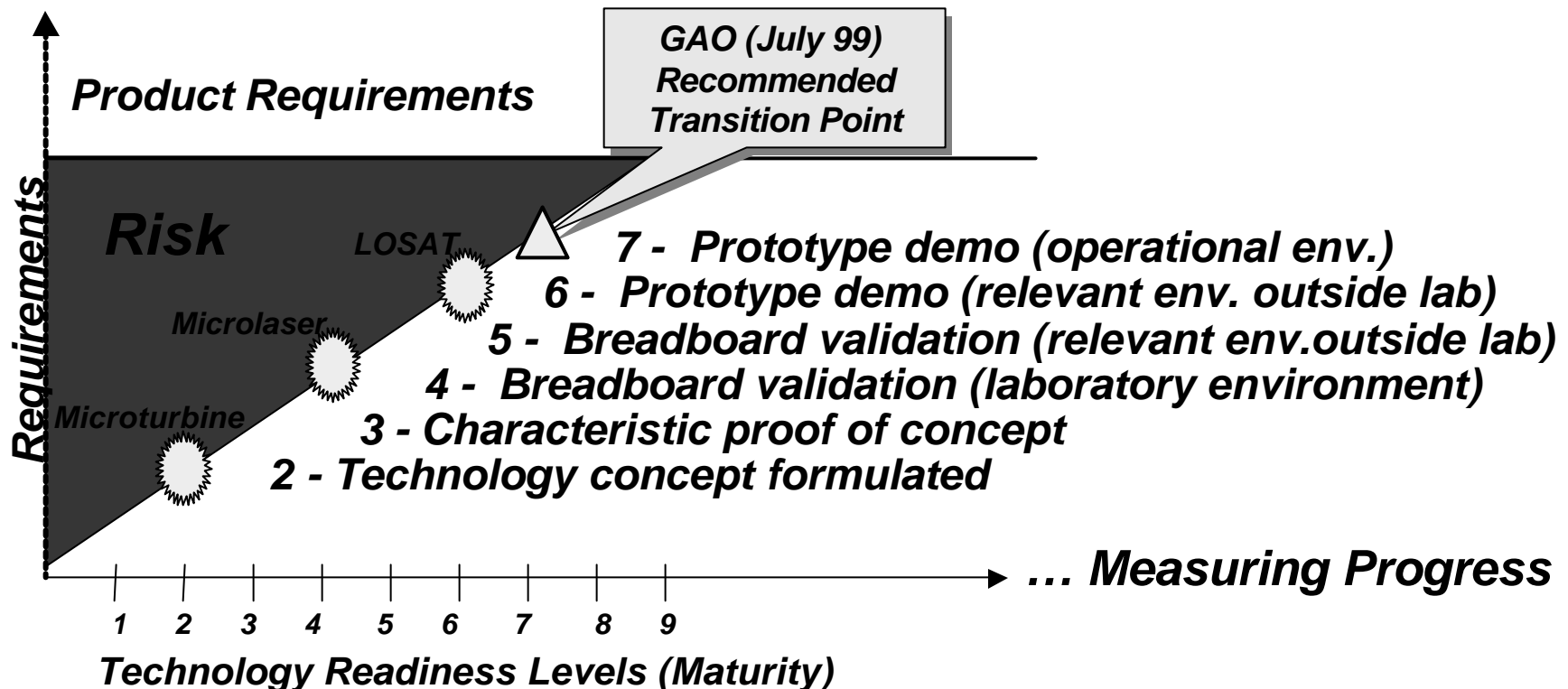
Advanced Technology Demonstrations (ATDs)

Advanced Concept
Technology Demonstration



Technology Readiness Levels

... Metrics for Risk Management



Technology Readiness synchronized with FCS Schedule

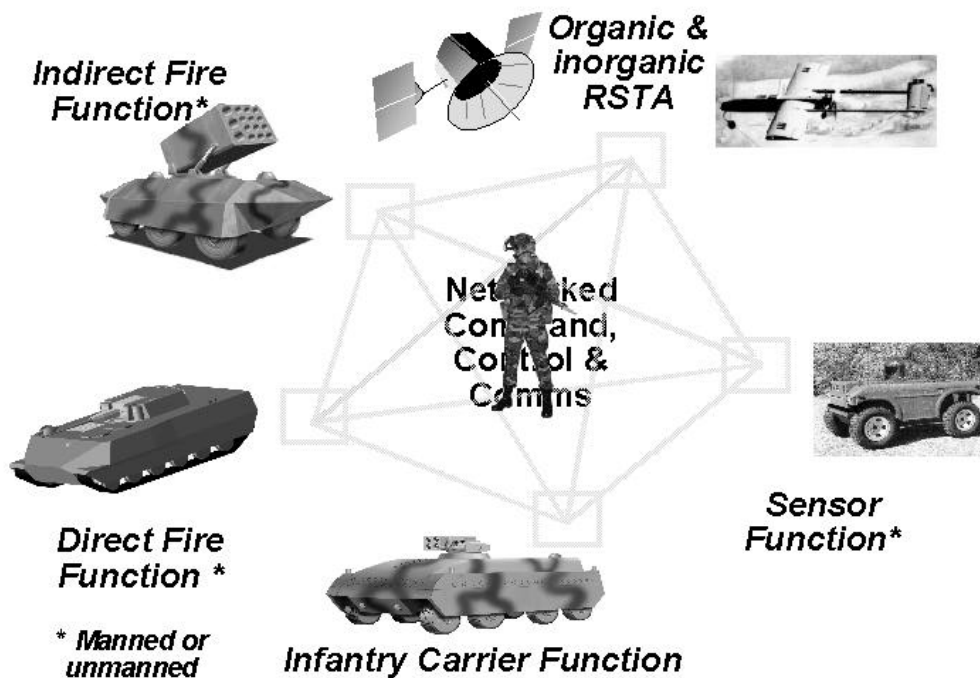
- > TRL 5 Components/ Subsystems by Mid FY03
- > TRL 6 Components/ Subsystems by Mid FY04
- > TRL 6 System of System Demonstration by end FY05

Readiness Decisions for Transformation



Future Combat Systems

Notional Systems Construct



**System of Systems
Approach...
not platform-centric**

DARPA / Army Collaboration

- **DARPA: high risk & innovative approaches***
- **Army: accelerates high-payoff core technologies**

* \$964M Collaborative MOA (FY00-05)

Overwhelming Organizational Combat Power



Network Centric Combat ... Foundation of the Objective Force

***Increased lethality
and survivability***

OVERMATCH

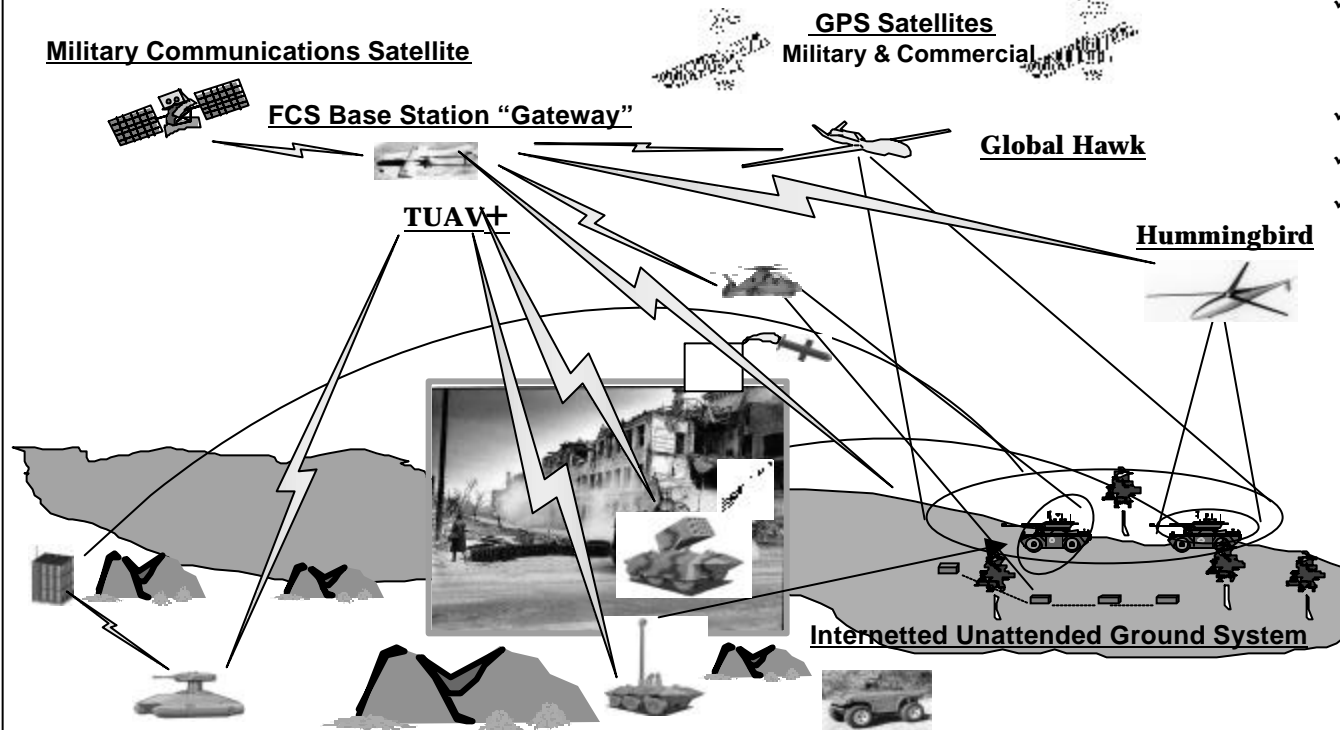
- ✓ *Precise targeting*
- ✓ *Assured lethality*

KNOWLEDGE

- ✓ *See with greater clarity*
- ✓ *Every attack deliberate*
- ✓ *Every engagement an ambush*
- ✓ *Inside enemy dwell time*

PROTECTION

- ✓ *Maneuver with lower profile*
- ✓ *Full spectrum active protection*
- ✓ *Advanced ballistic protection*



See First . . . Shoot First . . . Kill First



Micro Electrical Mechanical Systems- Inertial Measurement Unit STO

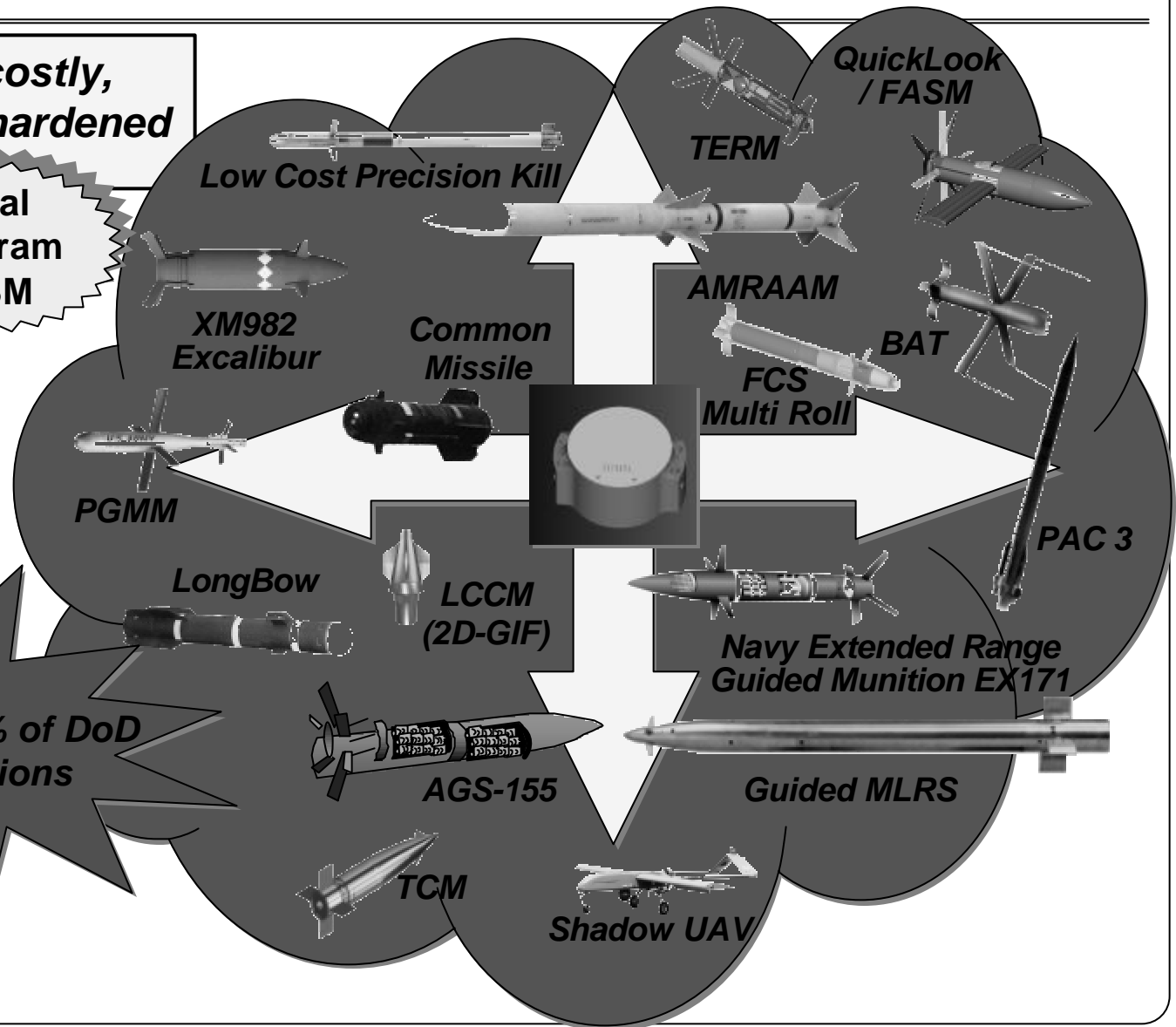
**Problem: IMU's too costly,
inaccurate, not gun hardened**

**Total
Program
\$93M**

BY FY 07:

G's	20K
Error	<1°/hr
Cube	2in³
Cost	<\$1200

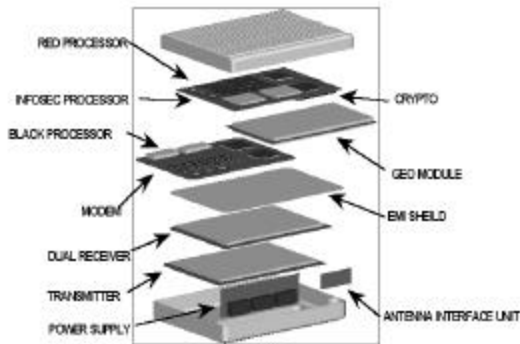
**Transitions to 90% of DoD
Tactical Munitions**





Future Warrior Enabling Technologies

C4/Situational Awareness



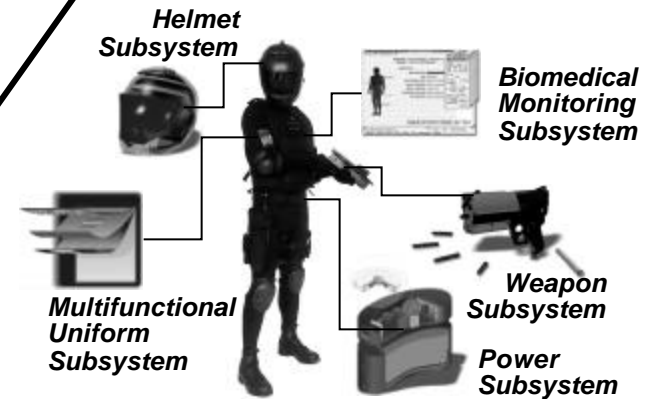
Electronics Integration

Clothing & Equipment Technologies



Smart Textiles

Technology Integration



Objective Force is Soldier-Centric

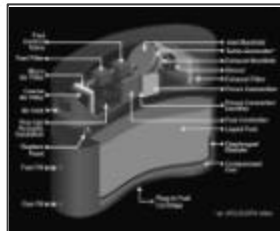
Power Sources & Power Management



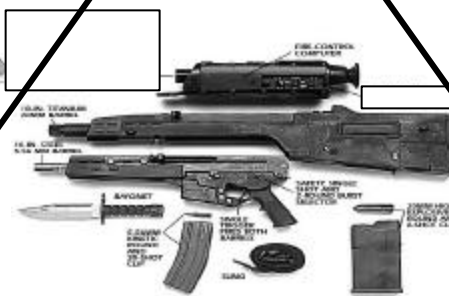
Fuel Cells



Li Polymer Batteries

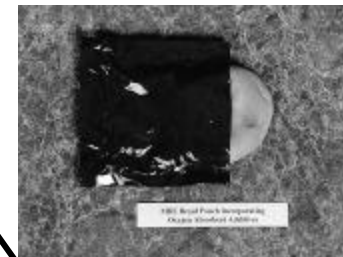


Microturbine



Weapon System

Soldier Support



Meals Ready to Eat (MREs)



Airdrop



Summary

- ***We have focused Army S&T on the Objective Force***
- ***FCS - the cornerstone for the Objective Force - is our #1 priority***
- ***We are doing things that have never been done before***